The theme of this thesis is the joinpoint regression, the description of model, its properties and its construction. We are interested in methods of estimating parameters. We show practical use of the model. In the first chapter we define the model, we describe alternative forms and properties. In the second chapter we focus on estimating parameters of model. We briefly mention of Hudson method, profile likelihood, grid search and LASSO. We mention likelihood ratio for testing hypotheses about values of parameters. The third chapter deals with comparison of models by number of break points by permutation tests and information criterions. In the fourth chapter we deal with practical examples. We show diverse application of the model. We compare methods using simulations and show model application.